

REMARKS

Applicants have amended claim 1 to include all of the limitations of claim 2 and canceled claim 2. Claims 8-19 have also been cancelled as being drawn to non-elected claims. Applicants have further amended claims 1 and 3-6 to rectify minor deficiencies. No new matter has been introduced by the amendments.

Claims 1 and 3-7 are currently pending. Reconsideration of the application, as amended, is requested in view of the remarks below.

Objection

The Examiner objected to claim 5 on the ground that the term "aluminium" is informal. Applicants have corrected this informality.

Rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejected claims 1-7 as being indefinite.

More specifically, the Examiner rejected claim 1, asserting that "the phrase 'assuming an acidic color in methyl red, an indicator of pKa + 4.8' is unclear as what applicants intend." Applicants have replaced the phrase with "when the ceramic article is exposed to a methyl red indicator of pKa +4.8, the methyl red indicator changes color to its acid color." Applicants have also amended claim 3 in the same manner. Claim 2 has been canceled and claims 4-7 depends from claim 3.

It is submitted that this rejection has been overcome by the above amendments.

Rejection under 35 U.S.C. 102(b)

Claims 1, 3 and 6 were rejected by the Examiner as being anticipated by JP-A-55-145677 (JP '677). Claims 1 and 3, the two independent claims, will be discussed first.

Claim 1, as amended, covers a ceramic article containing oxides of aluminum, silicon, and titanium in a total amount of at least 99% by weight. When the ceramic article is exposed to a methyl red indicator of pKa +4.8, the methyl red indicator changes color to its acid color. In

other words, the ceramic article is acidic. Claim 3 covers a method for producing such an acidic ceramic article, including calcining a mixture of an aluminum compound, a silicon compound, and a titanium compound at a temperature in the range of 1,000–2,000°C.

JP '677 discloses a catalyst support containing a total content of alumina, silica, titania not less than 99% by weight. When the catalyst support is exposed to a methyl red indicator of pKa +4.8, the methyl red indicator does not change color to its acid color. See the English translation of JP '677, page 2, lines 10-11. In other words, the catalyst support is non-acidic. Since the ceramic article covered by claim 1 is acidic, claim 1 is not anticipated by JP '677.

JP '677 also discloses a process of preparing a non-acidic catalyst support by calcining a mixture of alumina, silica, and titania at a temperature in the range of 1000–2000 °C. See the English translation of JP '677, page 3, lines 7-9. Since claim 3 covers a method of producing an acidic ceramic article, it is not anticipated by JP '677.

Amended claim 1 can be distinguished from JP '677 on a second ground. JP '677 discloses a catalyst support containing alumina, silica and titania, but does not specify their relative amounts. Thus, it teaches an extremely large genus. By contrast, amended claim 1 recites the specific ranges of oxides in the ceramic article covered by it. That is, the aluminum content is in the range of 70.0-99.5% by weight calculated as Al_2O_3 , the silicon content is in the range of 0.06-12% by weight of calculated as SiO_2 , and the titanium content is in the range of 0.08-20% by weight calculated as TiO_2 . The law is clear that § 102 does not apply when a prior art reference discloses a genus encompassing a species or subgenus but does not expressly disclose the particular species or subgenus claimed by an applicant. In other words, a species or subgenus is not anticipated by a genus. On this basis also, claim 1 is not anticipated by JP '677.

For the reasons set forth above, claims 1 and 3 are not anticipated by JP '677. Claim 6, which depends from claim 3, is also not anticipated by JP '677.

Rejection under 35 U.S.C. § 103(a)

The Examiner rejected claims 2, 4-5, and 7 under two grounds. Applicants traverse each ground as follows:

I

Claims 2 and 4 were rejected as being unpatentable over JP '677 in view of Oda et al., US Patent 4,316,965 (Oda). Claim 2 has been canceled. Applicants will discuss instead amended claim 1, which recites all of the limitations of claim 2.

Claim 1 covers an acidic ceramic article made of highly pure oxides (at least 99% by weight of oxides). JP '677 teaches that "[i]n general, low purity is apt to cause acidity." See the English translation of JP '677, page 2, line 26; emphases added. It clearly teaches away from an acidic ceramic article made of highly pure oxides covered by claim 1. Nowhere is an acidic ceramic article mentioned in Oda. Therefore, a combination of JP '677 and Oda does not render claim 1 obvious.

Applicants now turn to claim 4. The patentability of claim 4, which depends from claim 3, resides at least in part in preparing an acidic ceramic article by calcining a mixture of alumina, silica, and titania at a high temperature. JP '677 points out that "[i]t is [] desirable from the point of view of inhibiting acidity that calcination temperature is high." See the English translation of JP '677, page 2, lines 30-32; emphases added. It also points out that "the calcination temperature is suitably selected within the [high temperature] range of, usually, from 1000°C to 2000°C [to prepare a non-acidic catalyst support]." See the English translation of JP '677, page 3, lines 7-9. Clearly, JP '677 teaches away from calcining a mixture of alumina, silica, and titanium at a high temperature to produce an acidic ceramic article. Oda is silent on how to produce an acidic ceramic article. Thus, a combination of JP '677 and Oda does not render claim 4 obvious.

II

Claims 5 and 7 were rejected as being unpatentable over JP '677 in view of Nagase et al., US Patent 5,395,812 (Nagase).

The patentability of claims 5 and 7, which depend from claim 3, resides at least in part in preparing an acidic ceramic article by calcining a mixture of alumina, silica, and titania at a high temperature. For the reason set forth in Part I above, JP '677 would discourage a skilled person from doing so. Nagase discloses a catalyst for producing ethylene oxide containing an α -

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alumina carrier. Like Oda, it is also silent on how to produce an acidic ceramic article.
Therefore, a combination of JP '677 and Nagase does not render claims 5 and 7 obvious.

CONCLUSION

For the reasons set forth above, Applicants submit that the grounds for the rejections asserted by the Examiner have been overcome, and that the claims, as pending, define subject matter that is novel and nonobvious over the prior art. Applicants ask that all claims be allowed.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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